

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
2 December 2004 (02.12.2004)

PCT

(10) International Publication Number
WO 2004/105070 A2

- (51) International Patent Classification⁷: **H01J**
- (21) International Application Number:
PCT/US2004/015079
- (22) International Filing Date: 13 May 2004 (13.05.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/470,635 15 May 2003 (15.05.2003) US
60/470,734 15 May 2003 (15.05.2003) US
- (71) Applicant (for all designated States except US): **OSRAM SYLVANIA INC.** [US/US]; 100 Endicott Street, Danvers, MA 01923 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **MARKING, Gregory** [US/US]; 210 So. Pennsylvania Avenue, Sayre, PA

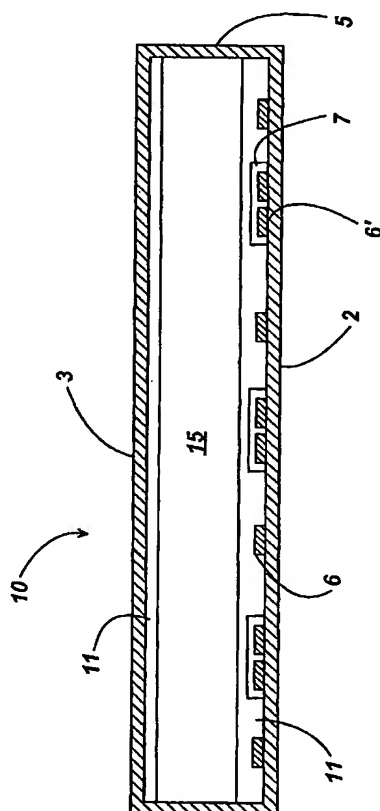
18840 (US). **CHAU, Chung-Nin** [US/US]; 111 Walnut Street, Apt. #3, Athens, PA 18810 (US). **SNYDER, Thomas** [US/US]; R.R. Box 1472, Laceyville, PA 18623 (US). **NORTHROP, Shellie, K.** [US/US]; Larch Road, Apt. 4, Sayre, PA 18840 (US). **FAN, Chen-Wen** [US/US]; 214 Sharon Avenue, Sayre, PA 18840 (US).

(74) Agent: **CASTEL, Benoît**; c/o Young & Thompson, 745 South 23rd Street, Arlington, VA 22202 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: **VUV-EXCITED DEVICE WITH BLUE-EMITTING PHOSPHOR**



(57) Abstract: Blue-emitting phosphors for use with plasma display panels (PDP) or other vacuum ultraviolet-excited (VUV) devices are provided. These blue-emitting phosphors and mixtures thereof include at least a europium-activated calcium-substituted barium hexa-aluminate (CBAL) phosphor. Preferably, the CBAL phosphor has a composition which may be represented by the formula: $\text{Ba}_{1.29-x-y}\text{Ca}_x\text{Eu}_y\text{Al}_{12}\text{O}_{19.29}$, wherein $0 < x < 0.25$ and $0.01 < y < 0.20$. These blue-emitting phosphors exhibit improved degradation characteristics, including reduced color shift and increased intensity maintenance, under conditions found in VUV-excited devices.



(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.